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REMARKS

This is in response to the office action mailed August 22, 2007. A Petition for extension of time together with payment is being mailed to the USPTO on this date (December 20, 2007).

Claims 6 to 8 are now in this application. It is submitted that the previous amendments to the claims place the application in order for allowance.

Claims 6 to 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betz in view of Constantine and the admitted prior art. Claim 8 is rejected as above further in view of Johnston.

In response to the rejections noted by the Examiner in the office action, Applicant offers the following technical comments in an effort to convince the Examiner that the claims as amended define patentable subject matter over the references cited and applied. The comments below are intended to supplement the technical arguments submitted in the previous response, which are incorporated herein by reference. In the office action, in the last paragraph on page 3, the Examiner makes certain comments and findings, and it is an objective of the technical points presented below to directly address these comments by the

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Examiner. It is hoped that the additional technical details presented herein will enable the Examiner to acknowledge the patentability of the claims and to allow the application.

Constantine teaches about gravity feeding of water to an emulsifying unit whereas the disclosed and claimed system in the present application is for a gravity primed fuel supply system. The patent to Constantine is for water system and used for feeding water into emulsifier unit. This is very common and is somewhat similar to the gravity fed water supply for household applications, wherein one has to provide a water tank at a certain height and provide a water outlet at a lower level.

The physical properties (such as density and viscosity) of water are very much different from those of auto fuel. The following information highlights this fact:

Water:

Density 1000 Kg/m<sup>3</sup>.

Kinematic viscosity  $1.006 \times 10^{-6}$  m<sup>2</sup>/s at 20°C;

Diesel fuel:

Density 840 Kg/m<sup>3</sup>.

Kinematic viscosity  $1.9 \times 10^{-6}$  m<sup>2</sup>/s to  $4.1 \times 10^{-6}$  m<sup>2</sup>/s at

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20°C).

Furthermore, it must be appreciated that a fuel supply system of an automobile is a complex system, in complete contrast to simple water feeding mechanism.

In the disclosed and claimed system of the present invention, it should be understood that, in order to enable gravity priming for the fuel supply system, re-defining, optimization and sequencing of the fuel system components must be accomplished to appropriately match the necessary pressure requirements of a fuel supply system.

Considering the above, the teaching of Constantine's gravity feeding of water to the emulsifying unit is not sufficient to prime the fuel feed pump.

Regarding the cited Betz patent, Applicant would like to further re-iterate that Betz's system requires manual mechanical intervention by opening the mechanical check valve to complete priming.

Applicant would like to further emphasize that the Betz patent teaches priming for two situations:

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- (1) Reverse priming for assembly line, and
- (2) Priming in the case of a vehicle running out of fuel during normal operation. Both the cases are described in further detail below.

Case 1:

Please see column 1, lines 51 to 61 of the Betz Patent No. 5,899,193, which states as follows:

"To provide for reverse priming, a priming line is connected to a connector at the inlet of the fuel injection pump. The priming line is provided with a closure, preferably a mechanically openable check priming valve of the type used for filling and maintaining air pressure in tires, such as a Schraeder valve. The valve allows fuel to be forced in to the priming line and to flow to the injection pump and also back through a delivery line to the filter housing. All air is thus forced out of the housing through the top inlet as the fuel continues through the feed line to the fuel tank."

Case 2:

Please see column 1, line 63 to column 2, line 2 of the Betz Patent No. 5,899,193, which states as follows:

"In case a vehicle runs out of fuel in normal

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operation, the engine may be restarted upon replacement of a small amount of fuel in the tank. This is accomplished by mechanically holding open the priming valve while the in tank fuel feed pump is operated. When fuel reaches the priming valve, the valve is closed and engine may be restarted. If necessary any remaining trapped air may be removed later by reverse priming of the system as before described."

From the above, it is very clear that the Betz patent teaches a manual system and also does not provide solutions to automatic priming in case the vehicle runs out of fuel during normal operation. Betz further requires reverse priming for complete removal of air from the system. The disclosed and claimed system of the present invention is, in stark contrast to Betz, an automatic system which primes fuel without having to open any mechanical valve. This is accomplished just by simply filling fuel into the fuel tank and thereafter starting the engine.

The teaching of the vent location in the case of Betz is different from that in disclosed and claimed system in the present application. Betz teaches a small air orifice in a by-pass line which primarily functions to pass the pumping means and

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connects through a fuel outlet fitting with a return line in case of manual reverse priming of the system.

As previously submitted, the mere combination of a gravity feed system as taught by Constantine and manually operated vapor vent as taught by Betz will not provide solution of self air bleeding as well as priming of the fuel system because:

(1) The combined system will require manual reverse priming.

(2) The combined system will also require manual intervention for bleeding air from the system by operating mechanically openable check valve.

(3) The combination as described above will require additional mechanism to bleed air that is trapped in fuel system (including filters and fuel lines etc).

Hence, combining the teachings of Constantine and Betz with that of Johnston will not lead to the solution of the problem i.e. self air bleeding from fuel supply system and priming the fuel feed pump.

The present invention (Application number 10/682,375) precisely addresses the issue of self air bleeding from fuel supply system and priming the fuel feed pump.

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In the disclosed system, following are the essential constructional features that solves the identified problems,

- (1) sequencing of fuel supply system components appropriately to ensure priming of the system;
- (2) positioning of air vent at the outlet of fuel injection pump (in banjo bolt) to enable self air bleeding through entire fuel supply system;
- (3) optimizing the features of the air vent to ensure minimum variation of operating pressure in fuel supply system;
- (4) providing means for self air bleeding and priming of fuel feed pump without any manual intervention.

If the Examiner has any questions, he is invited to contact the undersigned at telephone number (818)710-2788.

If the Examiner is inclined to continue to reject the claims, Applicant respectfully requests a telephone consultation with the Examiner prior to any further action taken.

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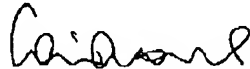
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Please acknowledge safe receipt of this correspondence by stamping and returning the enclosed postcard.

Respectfully submitted,



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Enclosed: Petition and check (sent by mail on December 20, 2007)

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